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UNRRA Responsibilities in Greece Concerning the Control of Piroplasmosis, Foot-and-Mouth Disease, and some Exotic Diseases

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Veterinary services were no exception to the general disruption found on the Continent as an immediate aftermath of the war. The raging epizootics which followed World War I, particularly rinderpest in Central Europe, had clearly demonstrated the imperative need for restoring efficient veterinary organizations as soon as possible after the recent war. An example in point was the spread of African horse sickness through the Middle East in 1944, when the disease extended to Syria. Greece provides one of the most vulnerable gateways for the entrance of epizootics to the European continent, and UNRRA was keenly aware of this fact when it undertook, among its other functions, the task of livestock rehabilitation in April, 1945.

The difficult veterinary situation which confronted UNRRA in Greece, and the measures taken to combat these problems, are dealt with in detail elsewhere.[1,2] Fundamental to the question of disease control, whether indigenous or exotic, is the lack of qualified veterinary personnel. This necessitates spreading thinly the relatively few veterinarians over a wide area, with the resulting constant danger of a major break through of disease from any one of several sources. Enzootic foci of sheep pox and foot-and-mouth disease demand constant surveillance to prevent a general conflagration. The early resumption of trade by private merchants resisting any Government control of their livestock imports and animal by-products from North and East Africa, where African horse sickness and rinderpest are highly troublesome, presents added complexities. This is because the need for such imports in Greece is so great as to overshadow almost every other consideration. Finally, the large-scale importation of livestock by UNRRA from different countries, including the United States, Mexico, Santo Domingo in Central America, Brazil, South Africa, Cyprus, Italy and England, requires close attention in order not to add to the veterinary burdens of Greece any diseases indigenous to those countries.

A general review of the measures used to prevent the importation of disease through the medium of UNRRA imported livestock has been made.[1] The exotic diseases to be considered here briefly are rinderpest and African horse sickness.

RINDERPEST

The danger of importing rinderpest to Greece arose primarily because of the efforts of merchants to bring cheap slaughter cattle from Ethiopia where rinderpest is enzootic and poorly controlled. By April, 1946, Egypt was suffering from an epizootic of rinderpest causing severe losses, the disease having spread through Northern Sudan to the Mediterranean Sea. All UNRRA receiving countries were warned of the dangers inherent in taking advantage of the cheap source of meat supply available in these countries, and an embargo on livestock imports was strongly urged. Great pressure was exerted by merchants on the Greek Government to allow unrestricted imports of slaughter cattle, especially from Ethiopia, and non-veterinary Greek authorities were sorely tempted because of the urgent need for meat in this country which was barely maintaining itself on a minimal subsistence diet. Information was received that some merchants were planning the ruse of shipping cattle to a Turkish port and thence to Greece as a means of evading the embargo. The Greek Government at the advice and request of UNRRA, however, resisted the importunities of the merchants and certain authorities who viewed the situation opportunistically as a means of encouraging trade and alleviating the food shortage. The Turkish Government was warned of the possible trans-shipping scheme and their co-operation was requested in forestalling this eventuality. Importation of some dried hides from Ethiopia was permitted, subject to inspection at the port of Piraeus.

Another weapon has now been given us in the fight against rinderpest by the development of a highly effective chick embryo vaccine[3] through the combined efforts of Allied research workers. UNRRA has already sent one million doses of this vaccine to China as an aid in the control of this disease Arrangements have been made to store in Athens 100,000 doses of the new vaccine which will be used to combat any outbreak of the disease in Southern Europe or, if warranted, in the Middle East.

AFRICAN HORSE SICKNESS

The severe epizootic of African horse sickness in Palestine and Syria in 1944 focused attention on the possibility of the spread of this disease to the Balkans and even throughout Europe. The prompt and effective vaccination campaign, combined with other control measures, carried out by the Palestine Government Veterinary Service[4] considerably reduced losses in that country and wiped out what might have become a solid focus of infection.

The status of this disease in other Middle East countries is not so clear. Suspected cases were reported near Damascus early in 1946,[5] but were not confirmed. In Egypt and Erithrea the disease was still being reported in late 1945.[6]

We have been unable to obtain definite information as to whether or not the *Culicoides* vector exists in Greece. Nevertheless, precautions have been taken to meet the possible danger of the introduction of African horse sickness to this country. Greek veterinarians were early supplied by UNRRA with a complete description of the disease and were alerted for possible cases. It was also ascertained that vaccine was obtainable from the Veterinary Laboratory at Kabete, Kenya, or Onderstepoort, South Africa, and could be shipped by air, if necessary. Finally, the importation of equines from Africa or the Middle East (except Cyprus, where the disease had not appeared) was prohibited by the Greek Government at UNRRA'S request.

The insistence of merchants on import licences in the spring and summer of 1946, however, threatened to cause difficulties. Badly needed equines were available in Irak, Egypt, and Ethiopia, and even high prices were no deterrent. As Government authorities showed signs of weakening, UNRRA again urged the Greek Government to prohibit such importations. An exception to the general embargo was recommended for equines which had been vaccinated not less than one month and not longer than eight months before shipment with fresh, potent vaccine, manufactured either by the Kabete or Onderstepoort Veterinary Laboratories and held under proper refrigeration. The usual mallein and dourine tests were also required. UNRRA mules and horses procured in the Union of South Africa for Greece meet these qualifications, the reliability of which were attested to by the highly successful shipments of equines to India and Italy from Africa by the British Army during the last war without the incidence of a single case of African horse sickness in the recipient countries. Thus far (October, 1946), the Greek Government has followed these recommendations which, apparently, have discouraged private importers, since no shipments have materialized except those by UNRRA from the Union of South Africa.

PIROPLASMOSIS

It is well known in veterinary medicine that the importation of livestock into countries where piroplasmosis is enzootic, is a highly hazardous procedure. It is probable that between 35 and 60 per cent. of cattle from non-infected countries will die from this disease during the first year after being introduced into heavily infected districts. During the second year, an additional 20 per cent. or more may succumb. This has been the experience in various British colonies, in Greece, and in the United States when "Texas Fever" was still a major problem in the southern states. Greece is heavily infected with piroplasmosis, and this problem has occupied an important place in the activities of UNRRA where imported cattle, horses, mules, and donkeys are concerned. Anaplasmosis also exists, but its extent in Greece is unknown.

The deficiency of past veterinary research activities caused great difficulties in the gathering of reliable data. The problem of piroplasmosis in Greece was clarified somewhat by pooling scattered information obtained from personal observation, literature, and practising veterinarians, and checking it as far as possible with the Veterinary Microbiological Institute in Athens.

The ticks thus far identified in Greece include *Ixodes ricinus Margaropus* (*Boophilus*) *annulatus, Hemophysallis punctata, Hyalloma egyptium. Hyalloma dardonicum, Rhipicephalus bursa, Rhipicephalus sanguineus,* and *Dermacentor reticularis.*

Table I represents the present state of knowledge with respect to the different types of piroplasmoses in various districts of Greece.

TABLE I.

	Attica	Macedonia	Thrace	Thessaly	Epirus	Peloponnesus	Islands
Babesia bigemina ...	+	+	+	+	?	+	U
„ *berbera* ...	+	+	+	?	?	?	U
„ *caballi* ...	+	+	+	+	+	+	?*
„ (*Nuttallia*) *equi*	+	+	+	+	+	+	?*
„ *ovis* ...	+	+	U	U	U	U	U
„ *canis* ...	+	+	U	U	U	U	U
Theileria dispar (*annulata*)	+	+	+	+	?	+	U
„ *mutans* ...	+	?	?	?	?	?	U
Egyptianella pullorum	+	U	U	U	U	U	U

+ = definitely diagnosed in laboratory.
? = clinical diagnosis.
U = status unknown.
* Crete.

Even with the incomplete knowledge represented in Table I, it can be seen that there is great danger of nullifying the high expenditures of money and effort on the part of UNRRA in bringing livestock to Greece.

Relatively small numbers of livestock were sent to Greece in the late summer and fall of 1945, so that the problem of piroplasmosis was not felt to be a serious one until the spring of 1946. Among the first units sent to all veterinarians in Greece in June, 1945, were quantities of pirevan. This drug is identical to acaprin which Greek veterinarians had used before the war. The veterinarians were also apprised of the danger of piroplasmosis in UNRRA imported animals. Clinical diagnostic units containing materials necessary for preparing blood smears were sent to every district.

Unfortunately, many factors militate against proper field diagnosis in Greece. Piroplasmosis is often confused at *post-mortem* examination with anthrax which is highly enzootic in this country, so that it is often overlooked. Transport difficulties prevent the veterinarian from covering most of his assigned territory. Thus, news of various outbreaks of disease is delayed and garbled as to details, and often does not reach the veterinarian at all. Microscopic diagnosis of piroplasmosis, generally speaking, is a fairly simple procedure, but elusive to veterinarians who are out of practice with microscopic and clinical laboratory technique, regardless of whether apparatus, materials, and instructions are supplied.

If the control of piroplasmosis were allowed to remain in the hands of the far too few veterinarians serving the needs of Greece, it was realized that sole reliance upon therapeutic measures would result in abysmal failure. The possibility was explored of adopting immunization procedures, namely, the inoculation of imported animals with blood from infected animals and controlling the resultant infection with specific chemotherapeutic agents (pirevan, flavines, dyes, etc.). This procedure was undesirable because of the possibility of introducing carriers of the different piroplasmoses into previously uninfected districts with disastrous results to local livestock. Also, adequately trained laboratory personnel and veterinary facilities were not available. It was then decided to adopt the rather desperate expedient of depending upon UNRRA livestock recipients themselves for control measures. Attention was focused upon the control of ticks with DDT, and the early treatment of infected animals with pirevan.

Little definite information was available in 1945 concerning the efficacy of DDT against the various species of ticks. A few isolated experiments in Macedonia on cattle heavily infested with ticks showed, however, that 10 per cent. DDT in talc was quite effective in ridding the animals of the parasites after several hours. No other DDT preparation was available except pure DDT dissolved in an oil base, which was known to be toxic to animals. Supplies of the 10 per cent. DDT powder were very precious, and were being held in reserve primarily to meet the danger of typhus outbreaks in human beings. When the danger of a typhus epidemic lessened early in 1946, a sufficient amount of the DDT preparation was obtained to meet the needs of UNRRA imported cattle, but supplies were inadequate to carry out control measures on imported equines. The DDT was packed in convenient sizes of 2 oz. tins. One tin of powder used sparsely was sufficient to treat a cow. Each farmer who received an imported bovine was given seven tins of powder, enough for seven monthly treatments during the tick season. Printed instructions accompanied the tins, stipulating that the powder should be sifted on to the hand and rubbed into the cow's skin over the entire body.

An impelling reason for adopting the DDT procedure was the theoretical possibility that cattle thus treated may acquire active immunity to the types of piroplasmoses existing in the region to which they were sent. There was no expectation, or even desire, of keeping the animals continuously free of ticks by this method. It was not desirable, because after this year it is improbable that tick control will be carried out to any appreciable extent by the State Veterinary Services or the farmers themselves without the impetus of outside aid. It was hoped, rather, that only a small number of infected ticks would be able to attack at any one time an animal treated with DDT and this would result in the development of active immunity instead of overwhelming infection.

Large supplies of DDT have now become available and UNRRA is purchasing two types for tick control in 1947, namely, a water-suspendable product and a dusting powder. A 50 per cent. wettable DDT preparation will be diluted down to 2½ per cent. with water and sprayed upon animals fortnightly in highly infected areas. Reports indicate this concentration to be effective against most ticks.[7] For UNRRA imported animals, a 10 per cent. DDT powder will be supplied in 1 lb. cartons to farmers who will be instructed to dust their animals lightly every two weeks during the tick season.

It was felt early, however, that the projected DDT control programme left too many loopholes. Greek farmers, like farmers in other countries, are sceptical of any innovation in livestock practices and tend to ignore them until disaster strikes. Chemotherapeutic control seemed desirable, therefore, as an adjunct to DDT preventive measures. This necessitated the choice of a drug effective against as many different types of piroplasmoses as possible, not too dangerous in the hands of laymen, simply packed for distribution, and relatively easy to administer.

No one drug known at present can satisfy completely these requirements. The nearest approach is pirevan (acaprin). Pirevan is highly effective against *Babesia bigemina* and *B. caballi* infections. It is less valuable against nuttalliosis (*B. equi*), *B. berbera*, and *Theileria dispar*. Moreover, pirevan causes severe, but seldom fatal, reactions, and it must be injected parenterally. With full realization of these limitations, plus the fact that even veterinarians often have difficulty in diagnosing piroplasmosis, one ampoule containing 6 c.c. of 5 per cent. pirevan was given to each recipient of an UNRRA imported animal along with an instruction leaflet. The leaflet contained a simple description of the disease in cattle and horses, particularly stressing the presence of ticks on the animal, haemoglobinuria in certain types of infections and its absence in others, depression and marked weakness. Upon observing these symptoms the farmer was urged not to move the animal and to call a veterinarian immediately, if one is available. If this was not possible, they were advised to have one-half the contents of the ampoule injected into the animal subcutaneously on succeeding days by the village doctor, pharmacist, or whoever had a syringe and needle. The farmer was further instructed to de-tick and rest the animal for one week.

These unusual control measures are felt to be necessary in order to meet a situation which otherwise would involve enormous losses. How broadly successful these measures may prove to be will probably never be known. Evidence of their failure, however, should be apparent this year. Thus far reported losses have been very moderate.

Foot-and-Mouth Disease

Recurrent epizootics of aphthous fever continually plagued Greek livestock. The disease is enzootic in Thrace, especially along the Turkish border, and this region has been the origin of most epizootics in the past. In recent years the disease has been spread either by nomadic mountain flocks proceeding to Western Macedonia and thence down to the plain of Thessaly for the winter, or by caique shipments of ruminants for slaughter directly from Thrace to the Attica region. The necessity for importing slaughter cattle from Turkey, where the disease is enzootic, has been another source of danger. The Greek veterinary services have been powerless to stop the spread of disease once it had gained a foothold in an area. The usual expedient to shorten the time span of an epizootic has been to transmit the disease artificially by gum scarification of susceptible animals with infected saliva.

The last generalized outbreak of foot-and-mouth disease occurred in 1938. During the war and occupation, movement and imports of animals were reduced to a minimum, which probably helped confine the disease to the enzootic centre of Eastern Thrace. A highly susceptible ruminant population existed, therefore, throughout the rest of Greece.

During the first half of 1945 there was little danger of the extension of this disease since intercoastal shipping was almost at a standstill. Overland movement of animals was at a minimum, and merchants had not resumed livestock imports from Turkey. In June, 1945, however, a severe outbreak appeared in Didimotichon, on the Turkish border, and began spreading westward. Although a stop-movement order of livestock was issued, we could not count on its effectiveness because of inefficient State police services and lack of personnel. It was then planned to take advantage of the natural barrier formed by the Nestos River which cuts across the narrow strip of Thrace from the Aegean Sea to the Bulgarian border. Guards were posted at the bridges and cloven-footed animals were not allowed to cross the river. Three newly repatriated veterinarians were employed by UNRRA to aid the State veterinarian in that area. Transport and disinfectants were also supplied. The barrier was penetrated twice during the next six months because of the smuggling of animals across the river at isolated and shallow spots, but the outbreaks were nipped quickly by slaughtering affected animals and disinfecting thoroughly with 2 per cent. caustic soda. An embargo had, in the meantime, been placed on livestock shipments from Thrace and Turkey where the disease was reported.

A programme of vaccination was next considered. The Waldmann foot-and-mouth disease vaccine had been very successfully used by the Allied Forces in Italy in 1944[8], and attempts were made by UNRRA to procure this vaccine. It was felt that by vaccinating all ruminants and swine in a belt 15 to 20 miles in depth, west of the Nestos River, an effective barrier would be created which, in addition to precautions already taken, would give reasonable promise of controlling the spread of the disease. Switzerland was found to be the only country producing the vaccine in sufficient quantity for export.

In December, 1945, therefore, the author went to France and Switzerland to arrange the purchase and shipment of the Waldmann vaccine. Attempts had been made in Greece, without success, to infect guinea-pigs with tissue specimens collected from affected animals in various parts of Thrace. Typing of the virus was attempted at the Pasteur Institute in Paris, but failed because of inability to infect guinea-pigs. At the Vaccinal Institute in Basle, Switzerland, repeated attempts along these lines were again unsuccessful and it was necessary to use bovines to identify the virus type, which proved to be type O.

Previous purchases by other countries, the necessity for testing the vaccines, and difficulties of foreign exchange delayed the purchase of 500 litres (approximately 10,000 bovine doses) of vaccine by the Greek Government until late in April, 1946. The flasks were packed in ice and sawdust and flown to Greece in less than twelve hours in a specially chartered plane. This means of transport was necessary, as the vaccine deteriorates if not kept between 2° and 8° C.

In late January, while we were awaiting the vaccine and watching for developments along the Nestos River in the north, a merchant landed 220 Turkish cattle at Piraeus under our very noses. He had somehow evaded importation restrictions, and cattle infected with foot-and-mouth disease were disembarked. By afternoon of the same day the infection was officially reported, and guards were posted to prevent any movement of men or animals out of the enclosure which was in an isolated spot near the docks. Approximately 30 animals of the 220 showed active infection.

The need for food was so great, however, that in spite of UNRRA'S recommendation to slaughter all animals and to burn the carcases on the spot, the Greek Government insisted upon salvaging as much meat as possible for human consumption. The author had studied the method used for conserving infected carcases at the Vaccinal Institute in Basle where, despite the handling of hundreds of infected cattle for vaccine production purposes, the disease had never escaped the confines of the Institute. Essentially the same procedures were followed in Piraeus, but under far cruder conditions.

The animals were driven to a slaughterhouse approximately 500 feet away, and three disinfections with 2 per cent. caustic soda were carried out in the infected enclosures and the path traversed to the abattoir. The animals were slaughtered under supervision; all heads, feet, udders, lungs, and gastro-intestinal contents were collected and burned; and all viscera were treated in boiling water before leaving the abattoir. The carcases were held for 42 hours at approximately 12° C. (In Switzerland the carcases are held for at least 48 hours at 3° to 4° C. which permits lactic acid formed in the muscle to kill any virus present. Externally, the meat is sprayed twice with a 1 per cent. solution of lactic acid.) The skins were washed with water and liberally sprinkled with sodium chloride, after which they were locked in a storage plant for 30 days. (In Switzerland, sodium chloride containing 2 per cent. of sodium carbonate is used.) The abattoir was thoroughly disinfected with 2 per cent. caustic soda and then shut for 15 days. The wearing apparel of abattoir personnel, and carts used for transporting the meat, were disinfected as much as possible, but it was felt that these measures were far from foolproof and unfavourable developments were expected.

Approximately three weeks after the episode at the abattoir, infection was found in a herd of 25 dairy cattle about five miles from Piraeus. Within the next two weeks a total of 104 cattle in three more herds in the same district were infected. Severe movement restrictions were placed upon these herds and their attendants. No clues could be obtained to explain the transmission of the disease to the affected locality.

Amazingly enough, no other infections were reported or discovered by veterinarians specially assigned for this purpose. There is little doubt that any extensive spread would have been revealed. The farmers had every incentive to report the disease as no slaughter policy was carried out, and veterinary attention and medicaments were distributed without charge.

Several factors were conducive to limiting the outbreak. Livestock movements at that period of the year (late winter) were minimal; few pigs were raised in the infected area, and they were usually not fed garbage or offal; and warm, sunny weather prevailed which unquestionably helped disinfect contaminated terrain. Pure luck, we felt, played the largest role.

The bivalent OA vaccine was received in late April, but by this time the worries of the farmers were dissipated and they refused to pay the nominal cost charged by the Greek Government for the vaccine.

In May veterinarians in Thrace reported animals reinfected three months after recovering from a previous attack of foot-and-mouth disease. The presence of a different virus type was feared, and new tissue specimens were collected. Soon thereafter, to our great disappointment, reports of the disease arrived from Thessaly, indicating the probability that nomadic sheep herds from Thrace had escaped surveillance and had carried the disease to the Thessalian Plain *via* Western Macedonia. Tissue specimens were also collected from Thessaly and a test of the vaccine from Switzerland was undertaken.

Facilities permitted only one experiment with bovines instead of the desirable separate testing of all tissue specimens. Guinea-pigs still could not be infected with Greek strains, although we were prepared for cross-immunity tests. (All three strains (A, O, and C) of the virus were brought from Switzerland and guinea-pigs had been immunized with them for this purpose.) Two native Greek cows from the uninfected area of the Peloponnesus were used as controls. Two Brown Swiss heifers which had just arrived from the United States, a country free of foot-and-mouth disease, were injected into the dewlap with 50 c.c. of the Waldmann vaccine. Fifteen days later the two unvaccinated Greek cows and the two vaccinated animals were placed in a common enclosure, and scarifications were made on the gums of the animals with pooled tissue specimens collected from cases in Piraeus, Thessaly, and Thrace (including specimens from outbreaks reported in the same animals three months apart). The unvaccinated Greek animals showed typical symptoms and signs of foot-and-mouth disease within three days. Observations of the vaccinated cows for two weeks revealed no evidence of infection.

We are aware of a possible fallacy in this experiment, namely, that a tissue specimen from any of the several regions might not contain living virus and, consequently, the presence of the "C" strain may have been undetected. However, we do not feel this to be likely since all specimens were collected from fresh vesicles and placed immediately in 50 per cent. buffered glycerin (*p*H 7·6) which is an excellent preservative for the virus.[9] Specimens shipped from Thessaly and Thrace were protected from excessive heat until they reached Athens within three days after collection. They were then stored in a refrigerator.

Commercial pressure and the need for food have forced the Greek Government to relax its restrictions on imports of slaughter cattle from Turkey and sheep from Thrace to the Athens area. The present law calls for veterinary inspection at the ports of embarkation, and a rather weak requirement that no foot-and-mouth disease has existed for 45 days in the area from whence the animals originate. The disease is now (October, 1946) spreading through Thessaly because of the extreme difficulty in enforcing sanitary regulations. Thus the chances are great for the reappearance of foot-and-mouth disease in the Attica district.

Another source of danger for the entrance of foot-and-mouth disease into uninfected parts of the country lies in the importation of frozen meat from Argentina for use by the British forces stationed in Greece. Fortunately, swine raising is pursued on a very limited scale, and the feeding of swill is an uncommon prac-

tice. Nevertheless, British Army units have been given instructions to sterilize all swill by heating before feeding it to swine kept on their premises, or before delivering it to contractors who may also use it for this purpose.

The use of the imported Waldmann vaccine is being reserved for protection of the more valuable dairy and breeding bovines in the Attica, Thessaly, Salonika, and Thrace regions. All UNRRA imported cattle arriving at ports in any of these regions are also vaccinated. It is hoped that by judicious use of the rather small quantity of vaccine available, the milk supply and breeding programme will not be seriously interfered with this year.

Unfortunately, the manufacture of the Waldmann vaccine in Greece is not a feasible undertaking, and it is too costly for continued purchase by the Greek Government. UNRRA, however, has arranged a scholarship in England for the Director of the Veterinary Microbiological Institute, and part of his time will be spent with Dr. I. A. Galloway at the Agricultural Research Institute, Pirbright, exploring the possibilities of introducing the production of a more practicable vaccine in Greece.

Summary

UNRRA responsibilities in Greece with respect to the control of piroplasmosis and foot-and-mouth disease have been presented, with particular reference to livestock imports. Measures taken to prevent the importation of rinderpest and African horse sickness are also discussed.

It is felt that the full realization of these efforts, which may affect the agricultural rehabilitation of all Europe, will depend upon the effective operation of an international organization which should continue activities along similar lines after UNRRA operations cease.

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THREE NEW A.I. CENTRES

Artificial insemination service for Devon cattle, as well as for Ayrshires and Dairy Shorthorns, will be provided by the new cattle breeding centre recently opened by the Milk Marketing Board at Torrington, North Devon. This will be centre No. 6 in the Board's national livestock improvement programme. Two more centres will be opened early in the New Year—at Sturminster Newton, Dorset, and Welshpool, Montgomery.

"The new Torrington centre," says the *Farmers' Weekly*, "will serve an area well known for its beef breeding and rearing herds. The Milk Marketing Board believes that there is great scope for the development of the dairy stock in this part of the country, and that it may become one of the foremost dairy stock breeding and rearing districts. As at other Milk Marketing Board centres, the area served will be extended later by the addition of sub-stations for the distribution of semen. The bulls from which service will be available include the Shorthorns Hoveton Triumph, Fothering Dairy Prince and Stourhead Crump, and the Ayrshires, Sheepcotes Jack and Charters Lucky Charm. There will also be at least one Devon bull, and service for others breeds may be considered later.

"The centre will operate under Attested licence conditions, but service will be available to any herd in the area whether Attested or not.

"Chairman of the local advisory committee is Mr. F. Carey, Nymet Barton, Lapford. Mr. E. J. Simmons, M.R.C.V.S., is the manager of the centre."

* * * * *

Some progress has been made towards the foundation of a National Dairy Technology Institute, states the Society of Dairy Technology in its annual report. The proposal has won the blessing of the Dairy Engineers' Association, the Refrigeration Association, and others, and the next step will be to discover exactly what support the trade will give.

Management of Bulls *

by
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The important part the bull plays in herd improvement is accepted by all. We are all well aware how in the past the choosing of the bull and his management was to a great extent ignored, the full aim being to get a cow in calf regardless of the sire.

In the light of our present knowledge by the using of good bulls, preferably proven ones, it is possible in a short time to grade up into a first class herd. It is necessary for us to know how to look after and give advice on the management of the stud bull and we, as veterinary surgeons, with our knowledge of physiology, psychology, dietetics and hygiene are the most competent people to advise on this matter. Unless we assume this responsibility this advice will be given by outside advisers not so well qualified as ourselves.

I intend in this short paper to limit my remarks to the bull constantly housed and used for controlled service. Although in the case of maiden heifers a bull running with the herd may be an economic and labour-saving necessity, such a method does not enable one to get reliable records of service dates. Similarly, in the case of a dairy herd several cows may be in season on the same date and if the bull is not housed, infertility may result from an excessive number of services.

The management of the bull used for controlled services may be classified under headings :—

1. Hygiene—housing; exercise; grooming.
2. Feeding.
3. Management of the bull during mating.
4. Bull temperaments.

Hygiene

The housing of the bull in the past, and in many cases to-day, is not only unhygienic but many border on cruelty. The animal is either kept in a small dark, poorly ventilated box, or constantly tied at the end of the cowshed and exercised only at the time of service. To expect maximum results under these conditions is ludicrous.

The bull must have a clean, well ventilated, well lighted box approximately 14 ft. × 14 ft., with an exercising pen with cement flooring, and if funds permit a carborundum dust covering; this keeps the bull's feet well down and prevents foot lameness, a malady present in old bulls and most marked in Friesians. In this pen it is advisable to have a bull-catching device in the corner, and an escape gap at each end of the pen. The walls of the exercising pen should be 4 ft. high with tubular iron bars spaced 10 in. apart up to 7 ft. 6 ins. If more than one bull is kept on the farm it is advisable to have them in adjoining boxes where they can see each other; not only does one bull tend to exercise the other, but it leads to better tempered animals. For temperamental bulls difficult to manage at time of service an overhead cable may be fitted up in the pen leading to a deeply embedded stake near where mating takes place, so that a chain from the bull can be attached to the cable, giving an added protection to the stockman.

With housing one can discuss exercise and grooming. Many bulls get their exercise merely by walking around their exercising pen, but with aged animals they seldom move around enough and more exercise must be provided. It has been my experience, especially with old bulls, that they serve with greater vitality and ejaculate better samples if exercised regularly. For the slow moving animal I recommend at least half an hour to one hour exercise per day. It is important to have reliable tackle for this so that the stockman can walk a bull around with confidence. I prefer the bull pole with the fixed head as the one with the few links on the end gives the bull too much play. Where horns are present a rope around the horns and through the ring is advised as an added safeguard, and in polled animals a strong halter should be used. When exercising, do so on a hard surface and in a quiet place where the bull's attention, or that of the stockman, is not going to be distracted.

The grooming of the bull should take place regularly, preferably daily but at the very least on three days per week. This not only keeps the bull clean and fit, but constant handling tends to mellow his temper. The curry comb and dandy brush are admirable for the job and it is wise in the case of several bulls to have separate tools for each bull; these tools should be washed and disinfected

* Paper to the Southern Counties Division, N.V.M.A., Annual Meeting at Winchester, July 23rd, 1946.

once per day. It is best in handling and grooming to have one man doing the work, as some bulls resent strangers.

Feeding

The old hay and water diet of the past was in many cases unsatisfactory and to-day, in the light of our present knowledge, much can be achieved by correct feeding. If one had a heavy-producing cow one would feed accordingly. Why then should we not feed accordingly to a bull who is the potential producer of many heavy-producing offspring? It is our duty to educate the farmer and stockman that bulls need proper diets as much as the dairy cow.

There is much conflict of opinion as to the best type of ration for the stock bull. In America and Russia great emphasis is put on the feeding of animal protein—*e.g.*, meat and bone meal, and in some cases dried milk is used. As a result, high fertility rates and increased vitality are claimed. At Lyndhurst a diet of fish meal, crushed oats, linseed meal, bean meal and C.L.O. is fed to the very young and very old bulls in winter and has proved most satisfactory. All bulls serve regularly and give 65 per cent. to 75 per cent. C.R. to first inseminations. The amount of the ration varies and at Lyndhurst I have a weekly examination of all bulls, instructing variation in their ration according to their condition and freedom of action. In the case of an animal becoming pendulous in abdomen a cut in hay ration may be advantageous. This system can with effect be practised on the farm; to stick to a hard-and-fast ration is most unsatisfactory.

Apart from the concentrates and hay, the addition of greenstuffs to the rations is essential: swedes, kale, fresh or dried grass are ideal. If a bull can be staked out in a paddock during the spring and summer so much the better. In my opinion the addition of this greenstuff tends to cause an absorption of water into the large intestine, diluting the toxins which tend to become concentrated there during heavy feeding of concentrates.

It is my view that this former lack of interest in bull hygiene, exercise and feeding, plus lack of selection, has been an added factor in sterility. Lack of proper nourishment, sunshine, vitamins, minerals, etc., causes weak spermatozoa, and this, plus poorly selected cows, may cause in some cases six-twelve week abortions, the larger number occurring during the early period. Those offspring that are born at full time are often weak and particularly susceptible to disease. Abnormal bulls and cows, especially those with previous history of genetical defects, do cause an increased number of monstrosities such as hermaphroditic monsters, bulldog calves, etc. An increased number of twins is often associated with hasty breeding after a physiological upset. It is reasonable, therefore, to suppose that over a period of years or generations of this type of management and breeding, we may obtain unfortunate results. The genetical factors for vitality and maximum reproductiveness may become heterozygous or altogether lost. We have got to make use of our scientific knowledge to educate stockowners and guide them in the right direction in order to prevent such a calamity.

Management of the Bull During Mating

The knowledge possessed by the stockowner is very limited regarding this aspect of bull management. Our own knowledge has been obtained during recent years and we have to thank our Insemination Centres as well as our Research Centres for vital information on this aspect.

It cannot be over stressed that young bulls should receive very careful consideration during mating. Young bulls may be dilatory in commencing service and a certain amount of love play and teasing may have to be practised in order to bring the young bull along. It is equally important not to overwork young bulls. Too frequent matings may cause the development of a painful swelling in the region of longissimus dorsi and costarum muscles and this may well leave a permanent weakness. I would suggest with a young bull under two years old one mating per week. Over two years old one can increase the matings, depending on the particular bull, feeding and general management and programme of the farmer. If it is wished for the majority of cows in the herd to calve in the autumn or early winter the bull may be called upon to work very frequently during a short spell and then receive a long rest. My opinion is that bulls are better working regularly in that a long period of rest in most cases is detrimental; spermatozoa being formed and undergoing disintegration in the epididymis or vas deferens may cause obstruction and leave temporary or even permanent damage.

It is most important that an owner should be very careful concerning the history of the cows with which the bull has to mate. In the case of the communal bull system—a system which I deplore—he should refuse any service unless a certificate of freedom from disease is produced, otherwise it is courting disaster. As a precaution the insertion of a bull pessary well up in the prepuce after each service is to be recommended.

During mating, cows should be served towards the end of the oestral cycle. In this case the sperm has a shorter time to survive before reaching the ovum in that the ovum is liberated from the follicle ten to 15 hours after the end of heat and the survival time of sperm in the uterine tract is approximately 24 to 30 hours: this time allows the sperms to reach the fallopian tubes in sufficient numbers while the ovum is viable. If a bull has not been in use for some time, say seven to ten days, it is advisable to allow the bull to mate with the cow twice within a short interval. The first ejaculate often contains sluggish sperm and may even be a dead sample. The second ejaculate is usually of much better motility and density. Always advise stockowners to use bulls before meals; bulls then serve quicker, seem to ejaculate much more active semen and are less apt to develop complexes. It is during the mating time that we have to be very careful, as complexes can easily develop here and they are most difficult to break down. Rough handling when bringing a bull out for service or vigorous pulling immediately after service is apt to produce a temperamental animal or cause refusal to work. After service the cow should be removed and less difficulty will then be experienced in returning the bull to his box.

The bull that develops the complex of standing asleep behind the cow in many cases is difficult to put right. Careful enquiry will reveal whether the bull has been badly handled or has injured himself during service. The treatment is change of environment, a change of place of mating, moving the cow forward in front of the bull, allowing the cow to ride the bull, and if necessary changing of the stockman. Refusal to serve is often due to disturbances of the nervous system rather than sexual exhaustion. These inhibitions are not so common with the bull on the farm but can occur quite frequently at bull centres.

Bull Temperaments

I would impress upon all those working with bulls never at any time to take chances or to relax vigilance, and always to be prepared for the unexpected. On the other hand many bulls have been classified as wicked or bad tempered when they really do not deserve this distinction. When I hear of a wicked bull I say to myself, "Is it a bad bull or a bad stockman?" When examining bulls for temperament it is wise to have a close scrutiny of the stockman. A cruel or nervous stockman will cause a bad tempered bull, no matter how mellow tempered the animal was at the beginning. One can, however, attempt to bring temperaments into four categories. These categories of course are elastic and encroach one upon the other.

(*a*) *The Nervous Bull.*—This condition may have developed owing to bad management or be due to an hereditary factor. Very often a bull kept in a dark, poorly ventilated box will present this attitude. The answer to this type of animal is careful handling by a competent stockman. Remove the cause if it is known, put him in a hygienic box, allow him to see the outside world, and ultimately the animal will realize that there is nothing to fear from you.

Some time ago a bull entered the Lyndhurst A.I. Centre so nervous that one was unable to enter the box with him. He simply went wild with excitement with the least movement and had to be tied. He was very nervous, especially if any movement was made towards his head, where he obviously had received many beatings. By quiet, careful, systematic handling this bull changed in character and to-day is quite normal. For the bull with hereditary nervousness there is little one can do. Handle with caution, but if the trait is severe it is best not to breed from such an animal.

(*b*) *The Sulky Bull.*—This type of animal is quite common. Changes in management, diet, environment, are resented and may cause dullness or even loss of appetite. Quite often one sees this type on a farm where more than one bull is kept, especially if they are housed in adjoining boxes.

There are two ways of attending to this type of animal—either by changing the bull used for mating as seldom as possible, or by having frequent changes, hoping this will acclimatize the bull so as to make him immune to sulks.

(*c*) *The Treacherous Bull.*—This bull is always on the attack and continually beating his box around. The vice may develop suddenly or be hereditary. My experience of this type of animal is to remove as soon as possible for slaughter.

(*d*) *The Placid Bull.*—Such an animal never becomes excited, is easily caught in his box and returned after service. This, of course, is the ideal type of bull.

In conclusion, when handling a bull it is necessary to take every precaution irrespective of the temperament suspected.

THE VETERINARY RECORD

December 21st, 1946

INTERNATIONAL CO-OPERATION

MANY factors, including the startling increase in facilities for quick transit from one country to another and from one Continent to another, have augmented the risks of spread of epizootic diseases. There is thus an imperative need for the closest co-operation between the different State Veterinary Services, so that information on fresh outbreaks of disease may be made immediately available and concerted action taken to limit their spread.

We welcome the appearance in this issue of a report of the Greek mission created by UNRRA to organize a temporary veterinary service in that country. It gives some indication of the difficulties which confronted our veterinary colleagues in their efforts to check a potentially dangerous situation. It is clear that the campaign to avert incipient outbreaks of rinderpest and other epizootic diseases was carried through with skill and determination, and it is probable that but for the efforts of the Mission, the flocks and herds of Greece might have run a grave risk of decimation. Whilst credit should be given to the valuable efforts of UNRRA in Greece and indeed in many other parts of Europe, in bridging the gap engendered by the change from war conditions to those of peace in countries whose normal State Veterinary Services have been seriously disorganized, there is a pressing need for the creation of a more permanent organization. The report rightly points out that "it is felt that the full realization of these efforts, which may affect the agricultural rehabilitation of all Europe, will depend upon the effective operation of an international organization which should continue activities along similar lines after UNRRA operations cease."

It is particularly heartening, therefore, that the Office International des Epizooties has been revived and has held its first meeting. This organization under the able leadership of Dr. Leclainche rendered valuable services in the period between the two wars. The frequent conferences held in Paris were supported by representatives from all countries and a real effort was made to formulate constructive policies for the global control of the major infective diseases. Now that this organization has recommenced its activities, we would suggest that it should be closely integrated with the Standing Committee on Animal Health, consisting of veterinarians, which it is hoped will be created by F.A.O. We would commend to our readers the excellent report of the *ad hoc* Committee, appointed to study current veterinary problems, which met recently in Copenhagen. The summary of the proceedings* by Sir Daniel Cabot, the Chairman, gives a clear indication that F.A.O. is fully alive to its responsibilities. Sir John Boyd Orr on the occasion of the N.V.M.A. Annual Dinner pointed out that one of the most important obstacles to an increase in animal food products was disease in animals. For this reason he, too, advocated the setting up of a special committee of veterinarians of all nations to study disease conditions in all parts of the world. The aims of these two organizations are so alike that a free interchange of ideas must be of mutual benefit.

Within the Empire, the Imperial Agricultural Bureaux have played an important part in providing up-to-date information on scientific endeavour. The Earl of Huntingdon, in welcoming the delegates to the recent Conference on the work of these Bureaux, said that their reputation is now international and is so great that F.A.O. has named them as one of the existing information services and has recommended that their scope should be extended to fields which are not covered at present. We do not doubt that these Bureaux, although they were created primarily to serve the Empire, can make important contributions to F.A.O.

Finally, we would urge an early resumption of International Veterinary Congresses. Members of the profession who participated in these functions will agree that they afforded a unique opportunity for an exchange of ideas, and by breaking down national barriers were of the utmost value in promoting international co-operation. It was most unfortunate that a period of twelve years intervened between the end of the 1914-1918 war and the occasion of the highly successful Congress held in London in 1930. It is to be hoped, therefore, that the Permanent Committee will be reconstituted at an early date with a mandate to press forward plans for a post-war Congress as soon as possible.

* *Vet. Rec.* 1946. **58.** 480

CLINICAL COMMUNICATION

Tuberculosis of the Supramammary Gland

T. G. McNABB, F.R.C.V.S.

Belfast

I was very interested in Mr. Tweed's communication on the above subject which appeared in *The Veterinary Record* of August 31st, 1946.

Having isolated acid-fast bacilli from the supramammary lymphatic glands of five sows in whose carcase, viscera or other lymphatic gland no macroscopic lesions of any nature could be found, the supramammary gland became of special interest to me. The sows were of the York breed, having an average carcase weight of 196 lb. and bearing no relation to one another. All five were infected in the right supramammary lymphatic gland which on incision revealed tubercular-like lesions.

Mr. Tweed draws attention to three points in connection with his case. With Nos. 1 and 2 I entirely agree. With regard to No. 3 (route of infection of the supramammary gland) I am of the opinion that infection of the gland was brought about by means of its own afferent vessels.

The following abstracts support my opinion:—

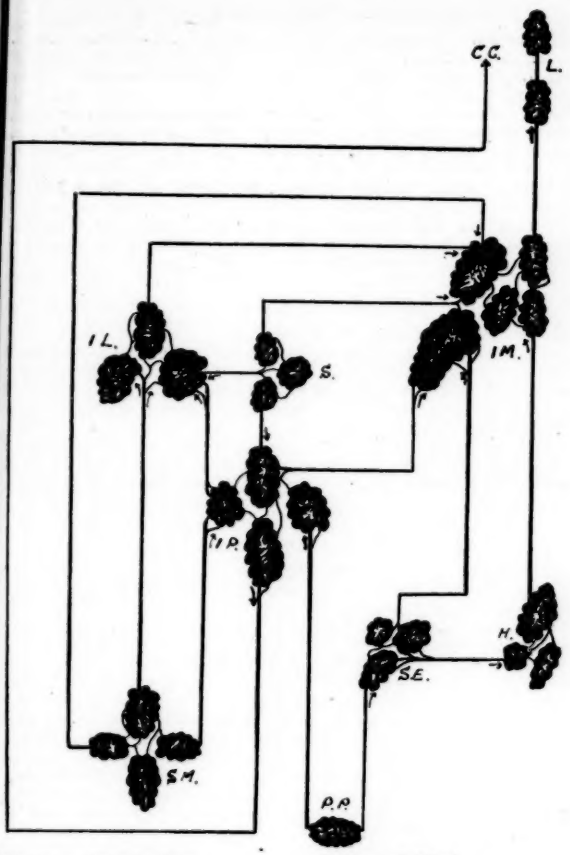
T. Dunlop Young (Textbook of Meat Inspection).—"The afferent area of the Ln supramammarii includes udder, vulva, vagina, clitoris, also part of the skin of the upper thigh, knee and leg. Efferent vessels pass to Ln inguinalis profundus and to the Ln subiliacus."

Septimus Sisson (Anatomy of Domestic Animals), 1938.—"The afferent vessels of the Lgg. supramammarii come from the udder, the external genital organs and part of the skin of the thigh and leg. The efferent vessels converge to two or three large trunks which go to the deep inguinal glands."

Gerald Leighton (The Principles and Practice of Meat Inspection), 1927.—"The afferent vessels of the superficial inguinal lymphatic gland, which is known as the supramammary lymphatic gland in the female, brings the lymph from the external sexual organs, the inferior abdominal wall and the middle portion of the thigh. The efferent vessels from them pass in part to the deep inguinal glands or directly into the commencement of the thoracic duct."

Louis Onno (Le Système Lymphatique du Boeuf), 1937.—"The affluent area of the supramammary gland includes the mammae, vulva, clitoris, skin of the thigh, of the flank and of the leg. The efferent vessels which do not pass through the retromammary gland generally drain directly into the external iliac glands, it is only exceptionally that they cross the median plane to reach the external iliac ganglion of the opposite side and even drain directly into the cisterna chyli. A more important fact: certain efferents can drain into the precrural ganglion on the same side, but this is somewhat rare. The ganglion of one side may communicate with that of the other side."

The diagram illustrates my findings of the chief lymphatics of this region in swine.



IM.—Lnn Iliaci Mediales. S.—Lnn Subiliaci.
H.—Lnn Hypogastrici IL.—Lnn Iliaci Laterales.
SE.—Lnn Sacrales Externi. L.—Lnn Lumbales.
PP.—Ln Popliteus Profundus SM.—Lnn Supramammarii.
IP.—Lnn Inguinales Profundi. CC.—To Cisterna Chyli.

N.A.A.S. AND WHITEHALL

In a note under the above heading the *Farmers' Weekly*, in a recent issue, reports that Professor J. A. Scott Watson, head of the National Agricultural Advisory Service, speaking to a conference of the Association of Scientific Workers, disclosed difficulties in connection with the appointment of the Service's staff which indicated dissatisfaction with the salaries offered.

He said that he had received "angry letters" on the subject and went on to explain that the appointments were made by the Civil Service Commission, which refused to accept a suggestion that there should be some discretion in fixing salaries in accordance with special conditions.

The reason given by the Commission was that such a course "would create a precedent in the Civil Service."

"During the war," comments the *Farmers' Weekly*, "we were always told that flexibility was an essential to efficient farming and that rigid control from Whitehall was not only inadvisable, but definitely harmful. It looks as though a considerable measure of rigidity has been imposed on the establishment of this very important service—which is a pity because the N.A.A.S. have plenty of difficulties of their own to cope with, without any more being added."

* * * * *

Weekly Wisdom

I was five years old, and I was in a candle-lit room, standing as it were in a vortex whirling with the hues of glory. At the heart of the glory was something called Christmas, and this Christmas illuminated the people about me, and my feelings and sensations, as it illuminated the room.—Thomas Burke ("The Magic Thing Called Christmas.")

ABSTRACTS

[Some Aspects of Wastage and Losses in Cattle. Phillips, R. (1946.) *J. Min. Agric.* **53**. 246-250.]

It is generally agreed that most cattle are in poorer condition in spring, at the end of the winter feeding period, than in autumn, after the summer grazing. Pre-war records showed that cows which increased an average of 1¼ cwt. during the summer lost a corresponding weight during the winter. Young stock are usually kept on practically a maintenance diet during the winter months and growth is made during the summer grazing only. Veterinary practitioners find that in the spring ailments are more prevalent, difficult calving cases are more numerous, and there are more post-calving disturbances than at any other season. In Ayrshire in 1933, the mortality in spring-born calves was 20 to 25 per cent., compared with 8 per cent. in the autumn. The records kept at a knackery in West Wales for four years showed that during most of the year the intake of cows was 24 to 34 per month, but that in spring there was a rise to 54 in March, a peak of 63 in April, and a drop to 45 in May. Records of another knackery, on the borders of England and Wales, also showed a peak during the spring period. It is suggested that this peak intake is mainly due to the cumulative effect of a low plane of nutrition for five or six months, and that it could be avoided by extending the grazing season at both ends—by manuring pastures with nitrogen in the spring, and reserving aftermath or growing arable grazing crops for autumn use—so that the cows are better prepared to face the shortened indoor feeding period. For this period high quality hay is the best foundation fodder, supplemented by a continual supply of fresh winter greens. Most cereal grains and purchased oil cakes are badly balanced in minerals, and a mixture of ground chalk, sterilized steamed bone flour, and common salt, with traces of iron, iodine, copper and cobalt should be added at the rate of 2 to 3 per cent. of the concentrated food. This higher level of nutrition during the winter period should reduce spring wastage.

J. O. L. K.

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[Control of Enterotoxaemia (Pulpy Kidney Disease) in Lambs by the Use of Alum Precipitated Toxoid. Muth, O. H., & Morrill, D. R. (1946.) *Amer. J. vet. Res.* **7**. 355.]

While antiserum treatment is apparently the most satisfactory method of controlling outbreaks of enterotoxaemia in lambs of three or four weeks, the authors consider this method to be expensive and the immunity of short duration. In Oregon they encountered the disease among older lambs and sought to establish active immunity by the use of toxoid. Alum precipitated toxoid was chosen as likely to be a more satisfactory antigen than formalinized whole cultures.

After growing *Cl. perfringens* type D in horsemeat-egg medium and filtering, a toxin rich in the epsilon fraction resulted. The filtrate was then formalinized and incubated for 15 days prior to the addition of potassium alum solution. The final product was then tested in lambs, some of which received two doses, some one dose, while another group of lambs was injected with 5·0 c.c. of a potent type D antiserum. The resulting plasma antitoxin content was found to be the highest in the lambs which received the double dose, and was also significant after the use of the single dose. Surprisingly, in the lambs which received antiserum no antitoxin was demonstrated, but this may have been due to lack of sensitivity in the method employed.

Field trials were undertaken in 1944 and 1945. In 1944 a total of 1,113 lambs were injected with 5·0 c.c. of the alum precipitated toxoid. These ran in seven flocks and approximately 50 per cent. of each remained untreated to serve as controls. Three months later the losses numbered three lambs. In the untreated groups the total loss amounted to 18. The following season controlled tests were conducted on only two flocks. On one there were no losses, but on the other 150 lambs were injected with 5·0 c.c. of toxoid subcutaneously and 121 were left untreated. From the treated group there were two deaths both shortly after injection. Eleven deaths occurred in the controls during the 35 days following. The experiment then concluded as the owner requested that the remaining lambs should be injected with toxoid.

The authors admit the limitations of such experiments, as it is usually impossible to get sufficient controls to allow trials to run their normal course. Nevertheless, they consider that where enterotoxaemia causes substantial losses in fattening lambs the use of alum precipitated toxoid is a promising control measure.

It requires 14 days for lambs to develop their maximum antitoxic level after being injected with this toxoid.

W. L. S.

[A New Instrument for Measuring Animals: Standardization of Measurements of Cattle. Olbrycht, T. M. (1945.) *Emp. J. exp. Agric.* **13**. 199-202.]

This zoometrical rule* can be used for almost all body measurements of both large and small animals, with the exception of girth measurements and the angles of the joints; it is light and easy to handle and can be folded into a case for carrying. The main rod consists of an outer and an inner part, and the latter can be telescoped into the former, so that it measures 42 in. when closed and 78 in. when fully extended. When being used for measuring heights a side arm is fixed to the headscrew, and, for distances, a second is attached to a slider. These side arms can be placed in any position vertical to the axis of the main rod, so that the shortest straight line between two points of the body not on the same level can be measured. There are three scales on the outer part of the main rod, one for distances over 39 in., another for heights under 39 in. and a third for distances under 39 in. A list of suggested body measurements of cattle is appended, and there are drawings of the instrument and photographs of it in use.

J. O. L. K.

* Manufactured by Messrs. Melville and Hunter, Edinburgh. The scales can be marked in inches or in the metric system.

IN PARLIAMENT

Vivisection

Mr. Peter Freeman: I beg to present a humble Petition protesting against the practice of vivisection on live animals, with or without anaesthetics. This Petition is signed by 1,972 petitioners, and reads as follows:—

"Believing vivisection to be morally unjustifiable, scientifically useless, dangerous, and demoralizing to the community, we earnestly pray this Honourable House to pass a Bill withdrawing the sanction of the law from this practice."

To lie upon the Table.

* * * * *

Questions

National Advisory Service (Officers)

Mr. Collins asked the Minister of Agriculture if he is aware that, as a result of an examination conducted by the Civil Service Commission, highly experienced established officers in his Department have been graded in the National Advisory Service at much lower grades than officers with comparatively limited experience and technical knowledge; that this has caused considerable dissatisfaction; and if he will arrange for an enquiry to be made into the method of examination and the assessment of results.

Mr. T. Williams: Arrangements were made by my Department with the Civil Service Commission, after consulting the staff association concerned, for officers of the Ministry to be interviewed and graded by the same selection boards as outside candidates, so as to secure fair treatment for all concerned. The membership of each board included a senior officer of my Department. As frequently happens in cases of this kind, some candidates may have been disappointed at the results, but I do not consider that any enquiry of the kind suggested by my hon. Friend is called for.

Mr. Collins: Is my right hon. Friend aware that the examination to which I have referred was of a very perfunctory nature, and that the Commission apparently did not have the advantage of previous reports on the officers concerned? Will he look into the matter again?

Mr. Williams: I can hardly accept the first part of my hon. Friend's supplementary question, but if he disputes the fairness of the enquiries I am afraid a further question would have to be put to the Financial Secretary to the Treasury, under whom the Civil Service Commission resides.

Sir Arthur Salter: Would the right hon. Gentleman assist the Civil Service Commission to maintain their standards, bearing in mind that experience in subordinate offices and technical knowledge are not the only qualifications to high administrative responsibility?

Mr. Williams: I could not agree with the right hon. Gentleman more. In many of these cases something other than so-called academic qualifications does enter into the scheme of things, and has done, in making these appointments.

Mr. W. J. Brown: Will the Minister bear in mind that the experience of some 70 years demonstrates absolutely that the only people who are ever satisfied with the results of a Civil Service Commission examination are the people who pass?

Agricultural Improvement Council

Colonel Ropner asked the Minister of Agriculture what changes are contemplated in the composition and functions of the Agricultural Improvement Council following the establishment of the Agricultural Advisory Service.

Mr. T. Williams: Under its present terms of reference the Agricultural Improvement Council is competent to advise generally, and does in fact do so, as to the lines on which a policy designed to raise technical standards of production can best be carried out. Its members comprise leading farmers, horticulturists and scientists, and the head of the National Agricultural Advisory Service is himself a member. Changes in composition and functions are accordingly not required to enable the Council to continue the close co-operation with the N.A.A.S. which already exists.

* * * * *

Advisory Service (Salaries)

Colonel Ropner asked the Minister of Agriculture whether he is satisfied that the rates of pay provided for the new Agricultural Advisory Service are sufficient to retain enough individuals of the right calibre and of a type who will be able to convince farmers of the value of their advice; and what arrangements are under consideration for improving the rates of pay.

Mr. T. Williams: The salary scales have been settled in relation to those of other scientific and technical civil servants, and I regard them as satisfactory. The second part of the Question, therefore, does not arise.

* * * * *

Dartmoor (Preservation of Ponies)

Mr. Peter Freeman asked the Secretary of State for War whether the importance of preserving Dartmoor ponies will be taken into account in connection with his Department's plans for Dartmoor.

Mr. Bellenger: Yes, Sir, specific precautions are taken to preserve the Dartmoor ponies.

Mr. Freeman: Will the right hon. Gentleman assure the House that no action has been taken which will in any way interfere with the famous and unique breed of ponies?

Mr. Bellenger: We are certainly doing all we can to see that they do not become extinct, at any rate through the Army's activities.

Mr. Charles Williams: Can the right hon. Gentleman say whether the decision is likely to be taken to evacuate the whole of Dartmoor?

Mr. Bellenger: That, I should have thought, was an entirely different question.

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Food and Drugs (Milk and Dairies) Act

Mr. Walker asked the Minister of Health whether he proposes to make an order to put into operation the provisions of the Food and Drugs (Milk and Dairies) Act, 1944.

Mr. Bevan: Yes, Sir. I hope to do so in the course of the next year, though I cannot yet give a date.

AGRICULTURAL HORSES

The official returns of the Ministry of Agriculture for England and Wales up to June 4th indicated that the number of horses was as follows:—

	1945	1946
Horses used for agricultural purposes (including mares kept for breeding)	457,000	437,000
Unbroken horses of one year old and above ...	73,000	71,000
Light horses under one year old	9,000	8,000
Heavy horses under one year old	21,000	16,000
Stallions being used for service	3,200	3,200
All other horses (not entered above)	117,000	112,000
	680,200	647,200

Figures rounded to the nearest thousand.

* * * * *

The Skipton Branch of the National Farmers' Union is, by resolution, urging the Ministry of Agriculture to allow a further three months before final rejection of bulls is made by livestock officers. It is argued that in face of the present shortage of feeding-stuffs it is difficult to get a bull into the best of condition by the present licensing age.

* * * * *

Sir George Stapledon, founder and first director of the Welsh Plant Breeding Station, Aberystwyth, who has resigned his appointment as head of the Grassland Research Station, at Dodwell, has joined the staff of Dunns Farm Seeds, Ltd., Salisbury, for whom he will take charge of the advisory department.

ROYAL COLLEGE OF VETERINARY SURGEONS

Membership Examinations, December, 1946

List of Successful Candidates

London

First Year:

Ashford, A. O.
Blanch, Miss M. M. E.
Bradley, G. E.
Jones, D. I.
Macdonald, Ian
Minson, Miss J. M.
*Owens, D. C.
Peake, J. K.
Shattock, Gordon
Sherlock, B. C.
*Symons, G. B.
Thurston, George (C)
Tuckett, P. C.
Warminger, B. G.
Wheeler, Miss E. C.
Wiggins, G. S.

* denotes 2nd Class Honours.
(C) denotes Credit in Chemistry.

Second Year:

Allen, P. V.
Archard, M. V.
Beswick, J. C.
Bishop, H. W.
Bowen, D. L.
Davey, T. E. L.
Drury, F. S.
Griffith, K. P.
Hardy, Roger
Heynes, Michael
Jenkins, O. D.
Lakin, C. N. S.
Mack, R. M.
Morgan, James
Oliver, A. C.
Pengelly, James
Spittle, R. J. H.
Spurry, J. R.
Stanislas, Ian
Stubbins, A. G. J.
Sutherland, Miss A. M. B.
Thomas, T. G.
Webster, A. A.
Whitney, J. C.
Wootton, J. C.

Third Year:

Ashton, M. A.
Beale, R. K.
Boughton, A. R.
Brown, A. M.
Callear, J. F. F. (H)
Cousens, A. D.
Darbyshire, J. H.
Dickinson, George (H)
Green, Miss M. K.
Hollands, R. D.
Howorth, John (A)
Hughes, E. J.
Hurst, P. E.
Ibbetson, Miss M. G.
James, Miss V. M.
Jones, W. A.
Mayes, S. E. V.
Ogden, A. L. (A) (H)
Orton, R. G.
Packer, D. O.
Pinniger, R. S. (A)
Price, E. K.
Rackham, Miss J. A.
Rees, J. V.
Scott-White, Miss A. (A)
Smith, R. N. (A)
Sperber, Miss M. V.
Stone, Paul
Tanner, S. C.
Walsby, J. B.
Young, G. F. P.
Young, Stuart

(A) denotes Credit in Anatomy.
(H) denotes Credit in Hygiene.

Fourth Year:

Beattie, W. E.
Benham, Miss C.
Brook, A. B.
Builder, Peter
Greenough, P. R.
*Griffiths, E. C.
Hobbs, D. O.
Hoffe, I. A.
James, R. A.
Keene, D. P.
*Lloyd-Griffiths, F.
Rand, Maurice
Rickards, D. A.
Slater, L. F.
Somerwill, G. L.
Taylor, P. E.
Warren, William

* denotes 2nd Class Honours.

Final Year:

Barrow, D. B. V.
Birkbeck, Miss M. C.
Burdett, R. G.
Carr, R. J.
Chaplin, Miss H. J.
Colley, A. H. F.
Deans, D. H.
Henderson, J. F.
Hopkin, William
Humphreys, P. N.
Jones, S. M. C. (M)
Lewis, M. R. W.
Lloyd, J. R.
Miller, E. R.
Ornbo, Miss M. A.
Shields, Miss Patricia
Stables, J. W.
Trawford, F. R.
Warren, A. G.

(M) denotes Credit in Medicine.

Edinburgh

First Year:

Baxter, J. T.
Brown, A. J.
Byrd, Miss B.
Clark, James.
Clemo, J. A.
Cochran, F. R.
Dean, T. S.
Gibson, W. W. C.
Henshaw, G. L.
Logsdon, Miss S. E.
McLaughlan, John.
Marr, T. G., Jun.
Robson, T. W. (B)
Smith, I. A.
Struthers, James
Williamson, P. T.

(B) denotes Credit in Biology.

Second Year:

Auchterlonie, David (H)
Branagan, Denis
Craig, W. A.
Dick, G. H.
Drake, J. N.
Evans, G. J.
Loxam, J. G. (H)
McKenzie, R. I.
Minnis, J. S.
*Raine, W. A. S.
Seamer, J. H.
Stirling, L. R.
Tolfree, Miss L. B. G.
Waterlow, Miss J.

* denotes Second Class Honours.
(H) denotes Credit in Histology, etc.

Third Year:

Bayliss, John (H)
Bowman, J. G. W.
Brotherton, P. N.
Corrigal, William.
Dawson, C. D. (A) (H)
Fawell, E. V.
Ferguson, James (P)
Henderson, N. J. D.
Horseman, Matthew.
Jones, E. E.
Kydd, W. J. C.
Miller, A. H.
Murphy, Stanley.
O'Reilly, E. J. A.
Routledge, D. B.
Watson, Harry.

(P) denotes Credit in Pharmacology.
(A) denotes Credit in Anatomy.
(H) denotes Credit in Hygiene.

Fourth Year:

Andrew, Hubert.
Braithwaite, J. R.
Ellis, P. R.
Gourley, James.
Macdonald, John.
*Macpherson, L. W.
Price, E. L.
Simms, I. H.
Sullivan, E. W.
Szilard, G. A.
Thomas, W. U.
Wight, P. A. L.

* denotes Second Class Honours.

Final Year:

Clarke, A. V.
Coupland, A. N. T.
Handy, D. E.
Mackenzie, Finlay.
Marshall, P. M.
Morton, P. E.
Shearer, G. C.
*Wharton, M. H.
Wilkinson, Leonard.

* denotes Second Class Honours.

Liverpool

First Year:

Jeffery, P. R.

Second Year:

Cundle, Miss E. G.
Earl, N. M.
Davies, E. L.
Horn, B. S.
Humphries, Miss S. M.
Jones, J. G.
Maydew, Eric
*Parkinson, W. G.
Stevens, A. J.

* denotes 2nd Class Honours.

Third Year:

Aston, K. R. (A)
Barlow, Miss Barbara
Clark, W. A.
Morris, J.
Pink, C. E.
Sinclair, K. B.
Swire, P. W.

(A) denotes Credit in Anatomy.

Fourth Year:

Fletcher, J. T.
Jones, R. G.
Sumner, G. R.
Walker, R. J. B.
Whittle, W. N.

Final Year:

Arthur, T. H.
Cairney, I. M.
Lloyd, W. H.
Obertelli, J. M.
Thomson, R. G.
Williams, C. P.

(To be Continued.)

NOTES AND NEWS

Diary of Events

Jan. 9th.—N.V.M.A. Committee Meetings at 36, Gordon Square, W.C.1: General Purposes and Finance (morning), Veterinary State Medicine (afternoon).

Jan. 10th.—N.V.M.A. Technical Development Committee at 10 a.m., Council Meeting at 11 a.m. (Both at the Connaught Rooms, Great Queen Street, Kingsway, London, W.C.2)

Jan. 10th.—Meeting of the Association of Veterinary Teachers and Research Workers (Founder Members resident in Southern Region), at the Royal Veterinary College, N.W.1, 2.15 p.m.

Jan. 15th and 16th—R.C.V.S. Committee Meetings.

Jan. 17th.—R.C.V.S. Quarterly Meeting of Council.

July 28th—Aug. 1st.—N.V.M.A. Annual Congress in Edinburgh.

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N.V.M.A. ANNUAL CONGRESS, 1947.

It has been decided to hold the 1947 Congress in Edinburgh from July 28th to August 1st inclusive. It is desirable that applications for accommodation should be made as early as possible as hotels and boarding-houses are already booking for next summer.

If any members fail to obtain suitable accommodation they should get in touch with the Hon. Local Secretary, Professor A. Robertson, Royal (Dick) Veterinary College, Edinburgh, 9, who will endeavour to assist them.

* * * * *

New Appointments to the Staff of the Ministry of Agriculture

As notified in recent issues, Council, N.V.M.A., has decided that no advertisements for appointments to the veterinary staff of the Animal Health Division of the Ministry of Agriculture shall be accepted for *The Veterinary Record* pending the settlement, in a manner satisfactory to the Association, of the question of the status and salaries of the Veterinary Officers of the Division.

In the meantime, any members of the profession who may, nevertheless, contemplate applying for such posts, should these be advertised elsewhere, are requested first to communicate with the General Secretary of the Association at 36, Gordon Square, London, W.C.1.

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PERSONAL

Dr. Edwards' Appointment as Dean in Cairo University

As our readers will be aware, Dr. J. T. Edwards has spent the greater part of the year in the execution of his mission, undertaken at the request of the Egyptian Government, to advise on the reorganization of veterinary education in that country. We now learn that, following upon the presentation of his educational reports, and to implement them, the University Senate, on the proposition of the Minister of Education (who was then chairman) has invited Dr. Edwards to remain on delegation for a further period, as Dean of what is now being raised to a Faculty of Veterinary Science. The invitation has been accepted by Dr. Edwards, who thus becomes the only non-Egyptian Dean of a Faculty in the Royal University of Cairo.

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Birth.—Milne.—On December 11th, 1946, at Longfield, Kent, to Margaret, wife of F. J. Milne, M.R.C.V.S., a daughter.

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Knights of the Round Table.—At a recent meeting of the Knights of the Round Table at the Knights' Hall, London, the installation of the Knight President Elect, the Rt. Hon. Maj.-Gen. the Earl of Athlone, K.G., P.C., K.C.M.G., D.S.O., took place. The ceremony was carried out on mediaeval principles, the Knight President being seated in King Arthur's seat. The officers of the club in turn presented their seals of office. Dr. W. M. Scott, F.R.C.V.S., F.R.S., Edin. (Bridgwater), as Knight Conestable and Master of the Horse, had the honour of presenting his seals, a pair of spurs.

Following the dinner, the Lord Chancellor proposed the toast of The Knight Champion then proposed the toast to the immortal name and fame of Arthur King of Britain.

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Death of Colonel Clell B. Perkins

Our readers will learn with deep regret of the death, which took place under tragic circumstances at Columbus, Ohio, on November 23rd, of Colonel Clell B. Perkins, who attended last year's N.V.M.A. Congress as Chief Veterinarian in the European Theatre of Operations. He was recalled by the sad news that his wife was seriously ill and she died five days after he arrived home. Since then he himself had been in hospital, but recently had been farming at Johnstown, Ohio, with his younger son. Dan and was looking forward to being officially retired on November 30th this year. Colonel Perkins died at University Hospital, Columbus, of wounds said to have been inflicted from a shot-gun in the hands of a tenant farmer during an altercation over wheat planting.

The sad news was transmitted by Colonel H. F. J. Arundel, Veterinary Corps, U.S.A., to a veterinary colleague in this country, who writes, in words that will be warmly endorsed by the many friends whom Colonel Perkins made during his stay amongst us: "This tragedy has cut short a useful and distinguished career in wicked circumstances.

"We who were privileged to know Colonel Perkins well, mourn a very good friend, a genial and delightful personality whose keen intellect and ready wit added lustre to any company."

Colonel Perkins is mourned by two sons and a daughter, to whom the deepest sympathy in their tragic loss will be extended by members of the Royal Army Veterinary Corps and all his other British friends.

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RABIES IN AN IMPORTED DOG

The Ministry of Agriculture and Fisheries reports the occurrence of a case of rabies in an imported dog while in isolation in approved quarantine kennels in the South of England. The affected animal was a 13 month old Alsatian dog, which had been acquired by its owner in Milan when it was five weeks old. It was imported into this country on October 31st, and moved to approved quarantine kennels, where the veterinary surgeon in charge reported that it appeared to be in normal health. On November 25th, the dog showed symptoms of the dumb form of rabies.

The animal died during the night of November 27th to 28th, and as a result of examination on November 28th the existence of rabies was confirmed.

It seems that infection was probably picked up in Italy in the latter part of September.

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"BRITISH JOURNAL OF NUTRITION"

Members of the profession have a deep appreciation of the work of the Nutrition Society, more particularly in its application to problems of animal health, and will welcome the intimation of its intention to issue a quarterly periodical, the *British Journal of Nutrition*, which will be published for the Society by the Cambridge University Press.

The journal will be devoted to the publication of reports of original work in every branch of nutrition, and the Editorial Board will consist of D. P. Cuthbertson, J. N. Davidson, R. C. Garry, G. Graham, J. Hammond, E. M. M. Hume, S. K. Kon (Chairman), I. Leitch, W. C. Miller, B. S. Platt, J. A. B. Smith and F. Yates.

It is hoped that the first number will appear some time during the first half of 1947. Papers should be sent to Dr. S. K. Kon (*British Journal of Nutrition*), National Institute for Research in Dairying, Shinfield, nr. Reading, Berks.

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A MATTER OF COURTESY

Users of our Professional Advertisement Columns are reminded of the *gratis* facility of intimating therein that their requirements have been met. Respondents to Box numbers would, however, be yet more indebted to them if they would invariably adopt the courteous practice of acknowledging the receipt of replies. The following is typical of the increasing number of complaints reaching us in this connection: "Once again it would appear that the time has come to raise the old cry against Box numbers, and the people who use them. During the past four to six weeks I have written to every practice for sale, or partnership for sale—in all about a dozen and a half or more—and of these I have not had more than half a dozen acknowledgments."

We feel sure that we have only to draw attention to this matter to remove a source of irritation—and it may sometimes be of anxiety—resulting from this thoughtlessness of a few in their dealings with fellow members of the profession.

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NATIONAL HEALTH SERVICE ACT REGULATIONS

Doctors' Majority Against Negotiation

The result of the postal ballot of the whole medical profession taken by the British Medical Association was that 18,972 voted in favour of discussions with the Minister of Health on the regulations authorized under the National Health Service Act, and 23,110 voted against, and having considered it, the British Medical Association decided that there was a sufficient body of opinion to justify it in refusing discussions with the Minister of Health. A significant feature of the ballot form was the statement that a negative vote on the question whether discussions should take place "is an undertaking, if so advised by the association, not to enter the new service."

After the announcement of the ballot result Mr. Bevan issued a statement in the course of which he expressed the hope that "wiser counsels will have prevailed" before the doctors take a final decision.

Dr. H. Guy Dain, chairman of council, said at a Press conference that when the council of the association met to decide if there were a "sufficient majority," all the figures relating to the various groups of doctors were considered. It was at once apparent that of the doctors mainly concerned—the general practitioners—64 per cent. had voted against negotiation. The figures were 11,297 against and 6,375 for. The young doctors in the general practitioner group effectively supported the majority against negotiation.

The position was reversed among doctors already in whole-time salaried services—there were 3,791 for negotiation and 2,021 against. Only 32 per cent. of replies had been received up to December 10th from the services and of these 2,682 voters 56·3 per cent. voted "Yes" and 43·7 per cent. voted "No." Of the consultants and specialists in England and Wales 1,884 voted "Yes" and 2,106 "No."

Dr. Charles Hill, secretary of the B.M.A., said that they had taken legal advice and it was quite obvious that the Act left doctors free to join the service or not. In a subsequent address to members of the National Liberal Club Dr. Hill said that he hoped it would be generally realized that no section of the profession was opposed to improving the medical services. The Council of the B.M.A., Dr. Hill announced, had resolved that no medical practitioner should be required by an employing body to join any organization—the B.M.A. or any other. It was not a question of whether a borough council should, at its discretion, recognize this or that professional organization. Although the B.M.A. was faced with one of the sternest periods of its existence, the association did not want compulsory membership. The only real test of the strength of an organization was the number who joined voluntarily.

A special meeting of the Representative Body of the B.M.A. is to be called for January 28th to consider the results of the ballot and to approve a resolution that the committee is unable to enter into discussions with the Minister on the regulations to be made under the National Health Service Act.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Foot-and-Mouth Disease:

Herefordshire.—Burcott Road Piggeries and Stonehouse Holmer, Hereford, Herefordshire (Dec. 11th).

Herts.—Stocker's Farm, Rickmansworth, Herts. (Dec. 11th).

Swine Fever:

Surrey.—Frosbury Farm, Gravett's Lane, Worplesdon, Guildford, Surrey (Dec. 11th).

Yorks (W.R.).—Far Laithe Farm, Laycock, Keighley, Yorks. (Dec. 11th).

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SLIGHTLY INCREASED RATIONS FOR LIVESTOCK

With a view to easing the difficulties which farmers have had to face owing to the reductions in feeding-stuffs rations which the world grain shortage made it necessary to impose upon them this winter, the Government has been taking all possible steps to purchase additional supplies in overseas countries. Certain purchases of cereals, mainly milling offals, have now been made in Argentina which will effect a further slight improvement in supplies of feeding-stuffs available for the remainder of the current winter feeding period.

Some part of these increased supplies will be absorbed by the heavier call upon the ration pool for dairy cows owing to the gratifying increase in milk production in September and October, which now seems likely to be continued in subsequent months. After consultation with the Farmers' Unions the Government has decided that the remainder of the extra feeding-stuffs shall be utilized mainly to improve rations for breeding stock and the following changes in ration scales will take effect from January 1st, 1947:—

Chick-rearing rations for replacement purposes will be raised from ¾-unit for each 30 birds on June 4th, 1946, to ¾-unit for each 20 birds so kept. These rations are not available to domestic poultry-keepers, poultry-keepers holding a small poultry-keepers' ration card, or hatcheries rationed on the basis of pre-war purchases of feeding-stuffs.

The allowance made on application for each sow or gilt about to farrow will be restored to 6 units. This allowance is not available to domestic pig-keepers, and as hitherto will not normally be made where pigs were not being kept before rationing commenced.

The monthly allowance of calf food for each calf up to the age of six months being reared for milk or beef purposes will be restored to ¾-unit. As hitherto, if the owner is not selling milk, this allowance will only be granted in exceptional cases, for example, on certain hill farms where a few cows are kept partly for calf-rearing.

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ROYAL AGRICULTURAL SOCIETY OF ENGLAND

On December 5th the Society held its first annual general meeting since 1939, when Lord Bledisloe, the retiring President, said that the Society's present building in Bedford Square had become inadequate for present and future needs and a house better equipped for administrative purposes, and with facilities for receiving visitors, particularly foreign visitors, was required. A sub-committee had been appointed to consider the matter.

A second subject of importance was, he said, a suggestion that dairy breeds would benefit from a central registry of records adjacent to, or in close touch with, the Milk Marketing Board. It had become apparent that there was a desire to improve the services of certain dairy breed societies, and that this might be done by mechanizing the production of herd books and also by providing a "performance record service" from information collected by the Milk Marketing Board.

Replying to a vote of thanks proposed by the Earl of Athlone, and seconded by Sir Archibald Weigall, Lord Bledisloe, who is shortly to leave on a good will mission for the society in Australia, said there were six tasks he would suggest for the future attention of the society:—

Close and friendly contact and collaboration with all leading agricultural organizations, especially the N.F.U.

Special encouragement to the Federation of Young Farmers' Clubs.

Active sympathy with agricultural education and research.

Raising the average standard of British livestock—all too low to-day—to that of the very best, and the steady elimination of animal diseases.

Free co-operation with agriculturists in every part of the British Commonwealth.

The determination that the society shall remain, in fact, as well as in name, the premier agricultural society of this country and the British Empire.

Lieut.-Colonel Sir Archibald G. Weigall, newly elected President, announced that, circumstances permitting, the King will visit the Royal Show at Lincoln next year, probably on July 2nd. The show will be held at York in 1948 and in Shrewsbury in 1949, and in the 1949 show it is hoped to establish similar conditions for cattle being free from contagious abortion as are being introduced against tuberculosis next year.

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THE VETERINARY EDUCATIONAL TRUST

The Veterinary Educational Trust has had printed several leaflets setting forth its objects and making appeal for public support. Most of these leaflets are handy for placing inside correspondence and veterinary surgeons could help in this connection by distributing them among their clients. Application for copies of the leaflets should made to Dr. W. R. Wooldridge at the London School of Hygiene, Keppel St., W.C.1.

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The Society of Women Veterinary Surgeons has contributed £5 5s., per Miss C. A. Woods, to the Trust.

A PIT PONIES' HOSPITAL

A pit ponies' hospital—stated to be the first of its kind in the country—was opened at Tondu, near Bridgend (Glamorgan) on December 9th by Mr. P. T. Jenkins, chief inspector of mines in South Wales. It was established through the efforts of Mr. G. A. Watson, general manager of the Powell Duffryn company's western area coalfield. The hospital has room for 35 sick or injured ponies. There is a surgery, operation theatres, and a resident veterinary surgeon.

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SCHEME FOR THE CONTROL OF DISEASES OF DAIRY CATTLE

STATEMENT SHOWING THE NUMBER OF UNDERTAKINGS NOTIFIED TO THE MINISTRY OF AGRICULTURE DURING THE MONTH ENDED NOVEMBER 30TH, 1946

ENGLAND	Undertakings Notified		Total Undertakings		
	During Month	Previously	Number	Number of Cattle	
				Cows	Heifers
Bedford	—	20	20	435	206
Berks	1	62	63	2,215	1,456
Bucks	2	49	51	2,045	1,129
Cambridge	—	3	3	52	14
Cheshire	1	229	230	7,121	2,726
Cornwall	—	—	—	—	—
Cumberland	—	24	24	707	612
Derby	4	267	271	7,547	4,238
Devon	2	188	190	2,648	1,696
Dorset	—	19	19	569	294
Durham	1	189	190	3,924	1,655
Essex	—	152	152	5,562	3,456
Gloucester	1	56	57	1,341	1,041
Hampshire	1	255	256	7,402	5,237
Hereford	—	5	5	206	99
Hertford	1	40	41	1,196	815
Hunts	—	1	1	41	—
Isle of Ely	—	1	1	57	21
Isle of Wight	—	—	—	—	—
Kent	—	98	98	2,384	1,592
Lancs	1	111	112	3,399	1,118
Leics	2	70	72	1,804	1,421
Lincs (Holland)	—	2	2	19	11
Lincs (Kesteven)	—	16	16	147	176
Lincs (Lindsey)	1	42	43	898	581
Middlesex	—	6	6	144	144
Norfolk	—	80	80	2,578	1,174
Northants	1	38	39	936	1,059
Northumberland	—	53	53	1,688	1,193
Notts	2	129	131	2,796	1,357
Oxford	—	20	20	462	371
Rutland	—	1	1	24	11
Salop	1	103	104	2,906	1,840
Soke of Peterborough	—	—	—	—	—
Somerset	2	196	198	5,224	2,543
Staffs	1	121	122	2,980	2,726
Suffolk, East	1	36	37	702	576
Suffolk, West	—	37	37	737	639
Surrey	1	72	73	2,297	1,134
Sussex, East	2	67	69	1,665	975
Sussex, West	—	54	54	1,284	836
Warwick	—	75	75	1,693	1,355
Westmorland	—	6	6	154	123
Wilts	—	56	56	2,320	996
Worcester	—	109	109	2,038	1,096
Yorks, E.R.	—	79	79	1,426	761
Yorks, N.R.	1	70	71	2,714	869
Yorks, W.R.	1	144	145	3,455	1,457
Total, England	31	3,451	3,482	92,042	52,820
WALES					
Anglesey	—	11	11	174	194
Brecon	—	9	9	156	94
Caernarvon	—	42	42	673	333
Cardigan	1	34	35	673	394
Carmarthen	5	148	153	2,918	1,597
Denbigh	—	23	23	525	253
Flint	6	31	37	842	476
Glamorgan	—	48	48	766	370
Merioneth	—	10	10	132	49
Monmouth	—	20	20	520	270
Montgomery	—	11	11	168	129
Pembroke	—	27	27	581	558
Radnor	—	—	—	—	—
Total, Wales	12	414	426	8,128	4,708
Total, England and Wales	43	3,865	3,908	100,170	57,528

SCOTLAND	Undertakings Notified		Total Undertakings		
	During Month	Previously	Number	Number of Cattle	
				Cows	Heifers
Aberdeen	—	18	18	937	388
Angus	—	15	15	561	390
Argyll	—	1	1	22	41
Ayr	—	12	12	376	239
Banff	—	1	1	120	29
Berwick	—	1	1	22	7
Bute	—	—	—	—	—
Caithness	—	—	—	—	—
Clackmannan	—	4	4	161	103
Dumfries	—	11	11	564	499
Dunbarton	—	1	1	60	40
East Lothian	—	1	1	20	8
Fife	—	24	24	896	526
Inverness	—	2	2	106	46
Kincardine	—	2	2	81	48
Kinross	—	3	3	62	43
Kirkcudbright	—	5	5	665	527
Lanark	—	7	7	296	225
Midlothian	—	—	—	—	—
Moray	—	—	—	—	—
Nairn	—	—	—	—	—
Orkney	—	—	—	—	—
Peebles	—	—	—	—	—
Perth	—	7	7	262	183
Renfrew	—	4	4	151	101
Ross-shire	—	1	1	58	43
Roxburgh	—	—	—	—	—
Selkirk	—	—	—	—	—
Stirling	—	9	9	315	261
Sutherland	—	4	4	82	39
West Lothian	1	1	2	75	22
Wigtown	1	16	17	1,284	685
Zetland	—	—	—	—	—
Totals	2	150	152	7,176	4,484

Notes.—Month ended November 30th, 1946: Operative periods of undertakings: 1 year, 1,129; 2 years, 231; 3 years, 2,548. Undertakings renewed for further periods: 1 year, 2,274; 2 years, 241; 3 years, 962. Undertakings not renewed at end of operative periods, 4,136. The figures showing the number of undertakings notified during the month relate to entirely fresh undertakings and do not include undertakings renewed for further periods. Undertakings which have been cancelled or not renewed are not included in the figures for previous notifications.

Notes.—(1) Duration of undertakings: 1 year, 45; 2 years, 7; 3 years, 100. (2) Undertakings renewed for a further period (included in column 2 of statement): 1 year, 90; 2 years, 9; 3 years, 69. (3) Undertakings expired and not renewed (not included in column 2 of statement), 241. (4) The figures showing the number of undertakings notified during the month relate to entirely fresh undertakings.

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EAST AFRICAN GOVERNORS' CONFERENCE

Pending further developments in East African inter-territorial organization the East African Governors' Conference, which was established in 1926 as the central body for co-ordinating matters of common interest to the Governments of Kenya, Uganda, Tanganyika, Zanzibar, Northern Rhodesia and Nyasaland, met in Nairobi on October 10th and 11th. The meeting was under the chairmanship of the Governor of Kenya, and was attended by the Governors of Uganda and Tanganyika.

The Governors discussed the future of Makerere College; the Central Veterinary Research Institute; the food supply situation in East Africa, and other matters of common interest. The Central Veterinary Research Institute was the subject of a recommendation to the effect that a director should be appointed to prepare plans for the organization and supervision of inter-territorial veterinary research and work connected with the manufacture of vaccines, etc. The food supply situation was considered from both a short- and long-term view: the Governors thought that the immediate situation still gave a cause for anxiety, and though it was slightly improved further imports of cereals might be necessary; taking a long-term view they endorsed the need for rehabilitating congested areas and supervising agricultural methods in newly settled areas. It was also agreed that the agricultural expert whom the Kenya Government proposed to appoint as adviser on the best means of collating and issuing information on agricultural methods should be available to other East African territories, and that when he had finished his preparatory investigation a Conference of Directors of Agriculture, research workers and farmers should be held to review the available knowledge with the aim of compiling a directory to it.

In discussing the important subject of Makerere College, the Governors noted that the Inter-Universities Council had recommended both a preliminary grant of £200,000 from Colonial Development and Welfare funds for capital expenditure, pending decisions on the full amount of assistance to be given when the report by their recent delegation to East Africa had been considered, and further grants to bring the income of the College up to £70,000 a year. It was also noted that a general census would be held in East Africa in 1948, and decided that the next Governors' Conference should assemble in February, 1947.—*Colonial Office News Service.*

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A show of thoroughbred stallions will be held on March 19th, 1947, at Derby racecourse, when the Hunters' Improvement Society will offer about 54 premiums of £200 each for horses to travel prescribed routes in England and Wales next season.

ATTESTED HERDS IN GLAMORGAN

At a recent meeting of Glamorgan Diseases of Animals Committee, reports the *Western Mail*, a member asked for details concerning the number of attested herds in the county as compared with Carmarthenshire, Cardiganshire and Pembrokeshire, leading counties in Britain for clean milk.

The Divisional Inspector (Mr. W. J. Leyshon) stated that in Carmarthenshire out of 5,529 herds 3,535 were attested, in Cardiganshire the figures were 3,459 and 3,057, and in Pembrokeshire 3,538 and 1,497. In Glamorgan out of 2,510 herds only 120 were attested, a percentage of 3·98.

Statistics prepared by Mr. Leyshon showed that there had been a big improvement in the position since 1935, when there was only one attested herd of 35 animals in the county. The number of attested animals was now 3,437.

The Chairman (Alderman Degwel Thomas): We do not seem to stand very high in this respect.

Alderman Joseph Dicks said there were several factors to bear in mind. Carmarthenshire was a breeding county, and up to recently had not depended so much as Glamorgan on supplying liquid milk. Its herds were, therefore, of a more permanent character and not made up of what were known in Glamorgan as "flying herds." Glamorgan farmers had for many years been engaged in providing supplies of liquid milk for a large consuming public in the immediate neighbourhood. Faced with the need to maintain supplies in the difficult period of the early months of the winter farmers were obliged to go outside the county to purchase milking cows. After those cows had been milked for a season or two they were disposed of. Such conditions made it more difficult to establish permanent attested herds.

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WHAT IS CHEMOTHERAPY?

The following editorial note on the above question appeared in the *Pharmaceutical Journal* on December 7th:

In 1918, in the first of a series of articles on chemotherapy, the *Journal* pointed out that the subject was still too young for generalizations to be made as our knowledge consisted mainly of a large number of isolated facts. At that time the most recent addition to the lengthening list of chemotherapeutic substances was the sulphonamide group of compounds, and these were hailed by chemotherapeutists as representing a truly typical advance in the search for chemicals which would destroy "the specific parasites of disease." To-day, the definition of chemotherapy seems to be less certain than it was nine years ago, a fact to which attention has recently been directed in a special issue of the British Council's publication, *The British Medical Bulletin*. Some authorities, states the *Bulletin*, would exclude from the scope of chemotherapy the local application of chemicals, and the use of anti-toxins; others would limit the term to the treatment of infections, while others would include the experimental treatment of cancer with chemical compounds. Summing up the arguments the *Bulletin* concludes that as currently used the word "chemotherapy" has no precise meaning and is an inadequate expression. Few doctors or pharmacists will argue with this decision, or even regret it, but the specialist whose mind is trained to be precise, will probably feel the want of a specific term to denote the science which he has generally viewed as filling a recognizable place in the whole realm of therapy—and he will continue to speak of "chemotherapeutic" agents, drugs, compounds, and so on. Precision, argues the *Bulletin*, can only be achieved by the use of a qualifying word, for "in any branch of science it is axiomatic that a term should be used by different persons as a symbol for the same thing or idea." Unfortunately no guide is given to the way in which specific ideas can unambiguously be expressed although McIlwain's recent definition of "chemotherapy" as meaning "specific antimicrobial chemotherapy" goes some way towards providing a clue to the qualification which is needed. To speak of sulphonamide chemotherapy would be unnecessarily prolix: sulphonamide therapy or even sulpho-therapy would be understandable, but any development of this word-shortening process to include such terms as acridin-therapy, penicil-therapy, would be irritating even to those who do not profess to be etymological purists. Nor can even these definitions be sufficiently precise, for they fail to distinguish between systemic and local therapy, and between action against microbial infections, against the results of those infections, and against pathological conditions of non-microbial origin. It appears, therefore, that specificity can only be achieved by linking the nature of the complaint or the site of treatment with a description of the "chemotherapeutic" means taken to remedy the condition. As general chemotherapy develops and its field becomes even larger than it is now, it may be possible to stake out separate divisions of the field and to give to each division an exclusive name. Only by such means can looseness of expression—which we all deplore—be properly averted.

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DANGER FROM ICE-CREAM

"Now that we have learned to keep sewage and drinking-water separate, it is time to take more care over keeping faeces out of food," states *The Lancet* in its issue of August 24th. "The control of dysentery and the enteric diseases depends on teaching people to wash their hands after defaecation. In America much more is being done than in this country to educate food-handlers about personal cleanliness, but with certain foods additional precautions are needed.

"Ice-cream is like milk in that it is a perfect bacteriological medium; but, unlike milk, it does not usually start off with a legacy of pathogenic organisms. Of the substances used in its manufacture, milk, dried egg, and possibly gelatin might contain pathogenic bacteria. Regulations laid down by the Minister of Health should do much to prevent the salmonella in dried egg from causing trouble, and as some form of heat is used in the preparation of most commercial ice-cream the danger from indigenous pathogens is further reduced. In the so-called cold-mix methods there are dangers, though paradoxically they may be less than in the hot-mixes, where initial heating often destroys the bacteria present in the original mixture. The chief danger in all types of ice-cream manufacture lies in human contamination, either from dirty hands or from infected droplets coughed into the mixture before it is frozen. In a recent investigation of three outbreaks of staphylococcal food-poisoning caused by ice-cream G. S. Wilson and his colleagues,[1] at Oxford, showed that in all cases the contaminated food had been allowed to stand unfrozen for anything up to 30 hours after preparation. It is during this interval between preparation and freezing that pathogens introduced into a hot-mix find not only a perfect medium for growth but almost equally perfect temperature conditions for rapid multiplication. For this reason the hot-mix method is probably the most dangerous, and the Oxford workers recommended that after preparation ice-cream mix should be frozen almost immediately if pathogens or toxin-producing organisms are to be prevented from multiplying while the mix is slowly cooling down. The remedy, therefore, is some method of immediate cooling, and we are glad to hear that the Ministry of Health is considering compulsory pasteurization for all types of ice-cream except that made by the cold-mix method. With such regulations in force there is little doubt that large outbreaks like that at Aberystwyth could be avoided.

"There remains the problem of getting some workable and reliable method for the bacteriological control of ice-cream. A total bacterial count at 37° C. gives some idea of bacteriological cleanliness; but the difficulties of this test may hinder its adoption, and there is need for further study. Many local authorities are also worried because a variety of watery mixtures, sold to the public as ice-cream, may be made in insanitary kitchens, and they seem to have little power to put matters right. The outbreak at Aberystwyth may serve a useful purpose if it forces public opinion to see that such things do not happen again."

(1) Williams, G. C., Swift, S., Vollum, R. E., & Wilson, G. S. *Month. Bull. Min. Hlth. & E.P.H.L.S.* 1946. 5. 17.

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MINISTRY OF AGRICULTURE NEWS SERVICE

Be sure to keep a breeding record.—On very good authority it has been said that infertility in the cows of this country leads to a loss in milk alone of about £7,000,000 per annum, and that the annual value of the calves lost to the nation by reason of infertile cows is about £600,000. It has further been stated that out of this total loss of £7,600,000 caused by temporary infertility and sterility, over £6,000,000 is preventable.

Considerable knowledge on the control and causes of infertility has been and is being gathered together, and to-day veterinary surgeons can do much to help a farmer in controlling infertility in his dairy herd. He must, however, be able to give the veterinary surgeon all the informatory help he can, so that he may be made aware of all the circumstances before he advises remedial treatment.

This information cannot be forthcoming unless every dairy farmer keeps a breeding record of every cow and heifer in the herd.

Feeding-stuffs and Milk per Acre.—Dr. A. B. Fowler, Deputy Director of the Hannah Dairy Research Institute, in an article, "Cropping for Milk," which appeared in the October number of *Agriculture*, the journal of the Ministry of Agriculture, gave some very interesting figures on the comparative value of various crops for milk production.

Grass silage or dried grass, for example, with a yield of ten tons per acre (before processing) has an effective milk equivalent of 250 gallons per acre. Kale giving 15 tons an acre has a milk equivalent of 220 gallons per acre. A soiling crop with a 12 ton per acre yield and beans (grain) giving 16 cwt. per acre have milk equivalents of 185 and 180 gallons per acre respectively. Swedes at 16 tons per acre show 125 gallons of milk per acre, while hay yielding 30 cwt. per acre has a milk equivalent of only 80 gallons per acre.

It can be seen that green herbage such as silage or dried grass, kale and soiling crops, followed closely by beans, have the highest figures for milk production per acre. They are also crops with a high protein equivalent per acre and possess high protein to energy ratios. All these facts render them well suited for inclusion in a milk production ration.

The figures also show how important a properly planned cropping policy is to the dairy farmer, not only for the purpose of achieving self-sufficiency in supplies of feeding-stuffs, but in producing crops that can be conserved for winter use and which will at the same time furnish the largest supplies of nutrients suitable for milk production.

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"HORSEBACK HALL, W.1"

"To the rescue of Oxford Street from some recent degradation by curious tenancies, Mr. Walter Hutchinson contributes finely," says *The Observer* in last Sunday's issue, and continues: "Derby House, looking on to Oxford Street from the Adam-planned cul-de-sac of Stratford Place, will be the home of his National Gallery of British Sports and Pastimes. This benefaction will ensure for the capital a fine use of Derby House, linking the Wallace Collection and the British Museum as bastions of the arts in the north-centre of the city. It will enormously increase London's artistic riches in forms of art which Trafalgar Square has never been able to display in adequate strength. The sporting canvas and print are national and notable British creations and possessions. All present visitors to the Royal Collection in Burlington House will rejoice in the gleaming brilliance and exquisite compositions of the Stubbs portraits and other equestrian pieces. Now we shall have in Stratford Place books, glass, china, and records which are decorated with (or descriptive of) sporting subjects as well as the canvas-cavalcade headed by Stubbs, Marshall, and Ferneley."

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WORLD BREEDING SOCIETY

"Formation of a 'World Society for Animal Breeding' seems probable in the near future," states "Blythe" in the *Farmer and Stock-Breeder*, and proceeds: "The British Society for Animal Production has, I understand, had under consideration the suggestion that an international conference on animal breeding should be held in 1947, and that the opportunity should be taken of discussing the foundation of a World Society, with the possibility of its organization being centred in this country.

"But the difficulties of housing, and the fact that a good many overseas visitors have come to Great Britain this year, coupled with the post-war strain on the teaching and research staffs who would be involved in the operations of such a conference have led to the idea being dropped.

"Instead, the British Society for Animal Production has welcomed the opportunity of co-operating with the Swiss Society of Animal Breeding at its Zurich meeting in 1947. This is only a national meeting, but the whole question of an international conference and of a World Society will be discussed by delegates from the British and other societies along with their Swiss hosts."

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The International Horse Show will be revived next summer at the White City from June 7th to 12th inclusive. There will be three sessions daily, and foreign teams, mostly military, will be competing in the jumping competitions for the Prince of Wales Cup and the King George V Cup. The King, patron of the show, has consented to be present at one of the gala days.

Abstracts of World Medicine and *Abstracts of World Surgery, Obstetrics and Gynaecology* will make their first appearance in January, 1947. These two new journals are being published monthly by the British Medical Association, the first at an annual subscription of 3 guineas and the second at 2 guineas. Applications for subscription should be sent to: The Publishing Manager, *British Medical Journal*, B.M.A. House, Tavistock Square, London, W.C.1.

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As part of the centenary celebrations of the Chemical Society an exhibition illustrating the achievements of British chemistry during the past century and the part which chemistry plays to-day in everyday life is to be held at the Science Museum, South Kensington. The exhibition, which will open in July, 1947, is being organized by the Chemical Society and the Department of Scientific and Industrial Research.

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A new organic insecticide, Velsicol 1068, was formally introduced by the Hygienic Chemical Co., Ltd., at a luncheon in London. It is claimed that Velsicol 1068 is far more toxic than D.D.T.; but, at the same time, it is more expensive, as its component parts are not produced on anything like the scale of those of D.D.T. It was discovered in the Velsicol laboratories in the U.S.A., and it is claimed that when it is used correctly all dust deposits are obviated.

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North-East England Clydesdale breeders, at their annual district meeting in Newcastle, discussed at some length the desirability of a grading-up system for non-pedigreed animals, and it was decided to suggest such a scheme to the council of the Clydesdale Horse Society.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

Correspondents should write as briefly as possible and letters should not exceed 350 words.

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COLONIAL VETERINARY SERVICE—EAST AFRICA

Sir,—I think it should be made known to those who contemplate joining the Colonial Veterinary Service that the salary scale at present in East Africa is £600—£30—£1,000 but at £840 there is a pause for five years, and veterinary officers who are certified as efficient *may* proceed to the scale £880—£40—£1,000. As far as I know, this hold-up for five years does not apply to any other department on this scale, and certainly not to the Medical Department, and it is difficult to know why there is this discrimination.

In the meantime there is a Commission investigating salaries generally in East Africa but the result cannot be expected for some little time so that the position at present is full of uncertainty.

I feel sure that the N.V.M.A. will give due consideration to the salaries of members of the veterinary profession when the report of the present enquiry is published.

Yours faithfully,
J. CARMICHAEL.

Boarded Barns Farm,
Ongar, Essex.
December 12th, 1946.

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WITH THE SEASON'S GREETINGS FROM THE R.A.V.C. (BURMA)

Sir,—Have just received your issue of October 19th. Reading through the "APPOINTMENTS VACANT" Column (for to me, as to my associates in the Corps, this makes very interesting reading), I came across the advert from Box 834. Thank you, Sir, your words have given me new heart; in fact I think the time is now ripe for me to seek the fair shores of the U.K.

N.B. No ex-R.A.V.C. Officers in the "APPOINTMENTS REQUIRED" column either—Gad, Sir, things must be improving.

Yours faithfully,
J. D. PARKINSON, Major, R.A.V.C.

HQ., 17 Ind. Div.
S.E.A. Command.
November 28th, 1946.

[The advertisement to which our correspondent refers expressed preference for an ex-R.A.V.C. member.—EDITOR].